

Amendments to the Claims

The following listing of claims will replace all prior versions and/or listings of claims in the application.

Listing of Claims:

1. (currently amended): A connector for an elongated member, comprising:  
a body;  
~~an~~ a first opening in the body configured to hold the elongated member;  
an engager; and  
~~a cam system positioned in a cam system opening in the body, wherein the cam system is~~  
configured to extend the engager into the first opening to couple the body to the elongated member.
2. (original): The connector of claim 1, wherein the engager comprises a surface of the cam system.
3. (original): The connector of claim 1 wherein the engager further comprises a surface that contacts the elongated member, and wherein a portion of the surface is textured to increase a coefficient of friction between the surface and the elongated member.
4. (currently amended): The connector of claim 1, wherein a portion of a surface defining the first opening is textured to increase a coefficient of friction between the surface and the elongated member.
5. (original): The connector of claim 1, wherein a portion of the cam system is angulated within the body substantially perpendicular to a longitudinal axis of the body.

6. (original): The connector of claim 1, wherein a portion of the cam system is angulated within the body at an angle greater than about 45° relative to a longitudinal axis of the body.

7. (original): The connector of claim 1, wherein a portion of the cam system is angulated within the body at an angle greater than about 60° relative to a longitudinal axis of the body.

8. (currently amended): The connector of claim 1, wherein the engager extends into the first opening when the cam system is rotated, and wherein a rotation range of the cam system is limited.

9. (original): The connector of claim 8 wherein the rotation range of the cam system is limited to less than about 360°.

10. (original): The connector of claim 8 wherein the rotation range of the cam system is limited to less than about 180°.

11. (original): The connector of claim 8 wherein the rotation range of the cam system is limited to less than about 90°.

12. (original): The connector of claim 1, further comprising a vibrational indicator that informs a user that the cam system is engaged.

13. (original): The connector of claim 1, further comprising a visual indicator that informs a user that the cam system is engaged.

14. (original): The connector of claim 13, further comprising a drive tool that activates the cam system, and wherein the visual indicator is a position of a handle of a drive tool relative to a position of the elongated member.

15. (original): The connector of claim 1, further comprising a second opening in the body configured to hold a second elongated member.

16. (original): The connector of claim 15, wherein the body is substantially unbendable.

17. (currently amended): The connector of claim 15, wherein the body is bendable to allow adjustment of the first opening relative to the second opening.

18. (currently amended): The connector of claim 15, wherein the cam system is positioned between the first opening and the second opening.

19. (original): The connector of claim 15, wherein the body comprises a first section configured to move relative to a second section, and further comprising a fastener configured to inhibit movement of the first section relative to the second section.

20. (original): The connector of claim 1, wherein the connector is a transverse connector of a bone stabilization system.

21. (original): The connector of claim 1, wherein the connector is a transverse connector of a spinal stabilization system.

22. (original): The connector of claim 1, wherein the body comprises a first section and a second section, wherein a position of the first section is adjustable relative to the second section, and further comprising a fastening system configured to fix the position of the first section relative to the second section during use.

23. (currently amended): An engaging mechanism for coupling a connector to an elongated member, comprising:

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a cam system positioned in a cam system opening in the connector, the cam system configured to extend an engager into an opening in the connector during use to couple the connector to the elongated member.

24. (original): The engaging mechanism of claim 23, wherein removal of a cam system from the connector is inhibited.

25. (original): The engaging mechanism of claim 23, wherein the engager comprises a surface of the cam system.

26. (original): The engaging mechanism of claim 23, wherein a contact surface of the engager that couples the connector to the elongated member comprises a textured surface.

27. (original): The engaging mechanism of claim 23, wherein a portion of a surface of the opening that contacts the elongated member is textured.

28. (original): The engaging mechanism of claim 23, wherein the cam system is configured to couple the connector to the elongated member when the cam system is rotated.

29. (original): The engaging mechanism of claim 23, wherein the cam system is configured to couple the transverse connector to the elongated member when the cam system is rotated, and wherein a rotation range of the cam system is limited.

30. (currently amended): The engaging mechanism of ~~claim 29~~ claim 29, wherein the rotation range of the cam system is limited to less than about 360°.

31. (currently amended): The engaging mechanism of ~~claim 29~~ claim 29, wherein the rotation range of the cam system is limited to less than about 180°.

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32. (currently amended): The engaging mechanism of claim 29, ~~claim 29~~ wherein the rotation range of the cam system is limited to less than about 90°.
33. (original): The engaging mechanism of claim 23, wherein the cam system is angulated within the transverse connector substantially perpendicular to a longitudinal axis of the transverse connector.
34. (original): The engaging mechanism of claim 23, wherein the cam system is angulated within the transverse connector at an angle greater than about 45° relative to a longitudinal axis of the transverse connector and less than perpendicular to the longitudinal axis.
35. (original): The engaging mechanism of claim 23, wherein the cam system is angulated within the transverse connector at an angle greater than about 60° relative to a longitudinal axis of the transverse connector and less than perpendicular to the longitudinal axis.
36. (currently amended): The engaging mechanism of claim 23, wherein the elongated member-connector opening includes an open side that allows the elongated member to be top loaded onto the elongated member-connector.
37. (original): The engaging mechanism of claim 23, wherein a drive tool is used to rotate the cam system.
38. (original): The engaging mechanism of claim 37, wherein a position of the drive tool relative to the elongated member indicates if the transverse connector has been coupled to the elongated member.
39. (original): The engaging mechanism of claim 37 wherein a handle of the drive tool has an elongated portion that is substantially aligned with the elongated member when the transverse connector is coupled to the elongated member.

40. (original): The engaging mechanism of claim 23, further comprising an indicator configured to vibrate when the cam system is rotated.
41. (currently amended): The engaging mechanism of claim 41, claim 40, wherein the indicator comprises a pin that contacts a portion of the cam system.
42. (currently amended): A transverse connector comprising:  
a body;  
~~an-a first opening in the body configured to accept an elongated member;~~  
~~a cam system positioned in a cam system opening in the body, wherein the cam system is~~  
in communication with the first opening; and  
an engager configured to extend into the first opening to couple the elongated member to the body when the cam system is activated.  
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43. (original): The transverse connector of claim 42, wherein the engager is a surface of the cam system.
44. (currently amended): The transverse connector of claim 42, wherein a surface of the body defining the first opening is textured.
45. (original): The transverse connector of claim 42, wherein the body includes an indentation that allows the body to be bent.
46. (original): The transverse connector of claim 42, wherein removal of a cam system from the body is inhibited.
47. (original): The transverse connector of claim 42, wherein a contact surface of the engager that couples the body to the elongated member comprises a textured surface.

48. (original): The transverse connector of claim 42, wherein the cam system is configured to couple the body to the elongated member when the cam system is rotated.

49. (original): The transverse connector of claim 42, wherein the cam system is configured to couple the body to the elongated member when the cam system is rotated, and wherein a rotation range of the cam system is limited.

50. (original): The transverse connector of claim 49 wherein the rotation range of the cam system is limited to less than about 360°.

51. (original): The transverse connector of claim 49 wherein the rotation range of the cam system is limited to less than about 180°.

52. (original): The transverse connector of claim 49 wherein the rotation range of the cam system is limited to less than about 90°.

53. (original): The transverse connector of claim 42, wherein the cam system is angulated within the body substantially perpendicular to a longitudinal axis of the body.

54. (original): The transverse connector of claim 42, wherein the cam system is angulated within the body at an angle greater than about 45° relative to a longitudinal axis of the body and less than perpendicular to the longitudinal axis.

55. (original): The transverse connector of claim 42, wherein the cam system is angulated within the body at an angle greater than about 60° relative to a longitudinal axis of the body and less than perpendicular to the longitudinal axis.

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56. (original): The transverse connector of claim 42, wherein the first opening includes an open side that allows the elongated member to be top loaded onto the elongated member.

57. (original): The transverse connector of claim 42, wherein a drive tool is used to rotate the cam system.

58. (original): The transverse connector of claim 57, wherein a position of the drive tool relative to the elongated member indicates if the body has been coupled to the elongated member.

59. (currently amended): The transverse connector of ~~claim 57~~claim 57, wherein a handle of the drive tool has an elongated portion that is substantially aligned with the elongated member when the transverse connector is coupled to the elongated member.

60. (original): The transverse connector of claim 42, further comprising a second opening in the body configured to couple to a second elongated member.

61. (original): The transverse connector of claim 60, wherein the body is substantially unbendable.

62. (currently amended): The transverse connector of claim 60, wherein the body is bendable to allow adjustment of the first opening relative to the second opening.

63. (currently amended): The transverse connector of claim 60, wherein the cam system is positioned between the first opening and the second opening.

64. (original): The transverse connector of claim 60, wherein the body comprises a first section configured to move relative to a second section, and further comprising a fastener configured to inhibit movement of the first section relative to the second section.

65. (original): The transverse connector of claim 42, wherein the connector is a transverse connector of a bone stabilization system.

66. (original): The transverse connector of claim 42, wherein the connector is a transverse connector of a spinal stabilization system.

67. (original): The transverse connector of claim 42, wherein the body comprises a first section and a second section, wherein a position of the first section is adjustable relative to the second section, and further comprising a fastening system configured to fix the position of the first section relative to the second section during use.

68. (original): The transverse connector of claim 67, wherein the fastening system comprises a collet and a collar, and wherein the collar is compressed onto the collet to fix the position of the first section relative to the second section.

69. (original): The transverse connector of claim 67, wherein the fastening system comprises a setscrew.

70. (currently amended): A connector, comprising:

a body;

a first opening in the body;

a second opening in the body; and

a cam system positioned in a cam system opening in the body, wherein the cam system is in communication with the first opening, and wherein the cam system is configured to extend an engager into the first opening.

71. (currently amended): The connector of claim 70, wherein the cam system opening is positioned within the body between the first opening and the second opening of the body.

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72. (original): The connector of claim 71, wherein a distance between a center of an elongated member positioned in the first opening and a center of an elongated member positioned in the second opening is greater than about 15 millimeters.
73. (original): The connector of claim 71, wherein a distance between a center of an elongated member positioned in the first opening and a center of an elongated member positioned in the second opening is less than about 45 millimeters.
74. (currently amended): The connector of claim 70, wherein the cam system opening is positioned ~~within the body~~ so that the cam system is not located between the first opening and the second opening.
75. (original): The connector of claim 74, wherein a distance between a center of an elongated member positioned in the first opening and a center of an elongated member positioned in the second opening is greater than about 5 millimeters.
76. (original): The connector of claim 74, wherein a distance between a center of an elongated member positioned in the first opening and a center of an elongated member positioned in the second opening is less than about 30 millimeters.
77. (original): The connector of claim 70, wherein a longitudinal axis of the cam system is located substantially perpendicular to a longitudinal axis of the body.
78. (original): The connector of claim 70, wherein a longitudinal axis of the cam system is angulated within the body at a non-perpendicular angle relative to a longitudinal axis of the body.
79. (original): The connector of claim 78, wherein the longitudinal axis of the cam system is angled at an angle between about 40° and about 90° with respect to the longitudinal axis of the body.

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80. (original): The connector of claim 78, wherein the longitudinal axis of the cam system is angled at an angle between about 60° and about 90° with respect to the longitudinal axis of the body.

81. (currently amended): The connector of claim 70, wherein the engager extends into the first opening when the cam system is rotated, and wherein a rotation range of the cam system is limited.

82. (original): The connector of claim 81, wherein the rotation range of the cam system is limited to less than about 360°.

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83. (original): The connector of claim 81, wherein the rotation range of the cam system is limited to less than about 180°.

84. (original): The connector of claim 81, wherein the rotation range of the cam system is limited to less than about 90°.

85. (original): The connector of claim 70, further comprising a vibrational indicator that informs a user that the cam system is engaged.

86. (original): The connector of claim 70, further comprising a visual indicator that informs a user that the cam system is engaged.

87. (original): The connector of claim 86, further comprising a drive tool that activates the cam system, and wherein the visual indicator is a position of a handle of a drive tool relative to a position of the elongated member.

88. (original): The connector of claim 70, wherein the body comprises a first section configured to move relative to a second section, and further comprising a fastener configured to inhibit movement of the first section relative to the second section.

89. (original): The connector of claim 70 wherein the connector is a transverse connector of a bone stabilization system.

90. (original): The connector of claim 70, wherein the connector is a transverse connector of a spinal stabilization system.

91. (currently amended): A bone stabilization system, comprising:  
a first elongated member coupled to bone by a first fixation element;  
a second elongated member positioned adjacent to the first elongated member and coupled to bone by a second fixation element; and  
a connector comprising a first opening configured to accept a coupling element coupled to the first elongated member, wherein the connector is coupled to the first elongated member by a cam system positioned in a cam system opening in the connector.

92. (original): The system of claim 91, wherein the connector further comprises an engagement system configured to couple the connector to the second elongated member.

93. (original): The system of claim 92, wherein the engagement system comprises a cam system.

94. (original): The system of claim 91, wherein the connector further comprises an engagement system configured to couple the connector to the second fixation element.

95. (original): The system of claim 91, wherein the first elongated member and the second elongated member are portions of a unitary, bent and contoured member.

96. (original): The system of claim 91, wherein the connector has a substantially fixed length.
97. (original): The system of claim 96, wherein the length of the connector may be adjusted by bending the connector.
98. (original): The system of claim 97, wherein a body of the connector includes an indentation to facilitate bending the connector.
99. (original): The system of claim 91, wherein the connector comprises a first section and a second section, wherein a position of the first section is adjustable relative to the second section, and wherein a fastening system inhibits movement of the first section relative to the second section during use.  
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100. (original): The system of claim 99, wherein the fastening system comprises a collet and a collar, and wherein the collar is friction locked to the collet to inhibit movement of the first section relative to the second section.
101. (original): The system of claim 99, wherein the fastening system comprises a setscrew.
102. (currently amended): A method of forming a connector comprising:  
placing a cam system within in a cam system opening in a body of the connector, wherein a threaded connection is not formed between the cam system and the body.
103. (original): The method of claim 102, further comprising inhibiting removal of the cam system from the cam system opening.
104. (original): A connector produced by the method of claim 102.

105. (currently amended): A method of attaching a transverse connector to an elongated member, comprising:

positioning ~~an~~ a first opening of the transverse connector at a location along a length of the elongated member; and

engaging activating a cam system positioned in a cam system opening of the transverse connector to extend an engager into the first opening to couple the transverse connector to the elongated member.

106. (original): The method of claim 105, further comprising:

positioning a second opening of the transverse connector at a location along a length of a second elongated member; and

coupling the transverse connector to the second elongated member.

107. (original): The method of claim 106, wherein the elongated member and the second elongated member are portions of a unitary, bent and contoured member.

108-282. (cancelled)

283. (new) A transverse connector comprising:

a body having an indentation that allows the body to be bent;

an opening in the body configured to accept an elongated member;

a cam system in communication with the opening; and

an engager configured to extend into the opening to couple the elongated member to the body when the cam system is activated.

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